

ABSTRACT

According to an embodiment, catalyst systems for polymerizing olefins include a catalyst comprising chromium and a cocatalyst comprising a substituted or unsubstituted non-transition metal cyclopentadienyl compound (Cp). The catalyst also comprises an inorganic oxide support. In an embodiment, methods of preparing a catalyst comprise contacting a support with chromium and with a non-transition metal Cp compound. In one embodiment, the support may be contacted with a solution comprising the non-transition metal Cp compound prior to entry into a reaction zone. In another embodiment, the activated catalyst and non-transition metal Cp compound may be added separately to the reaction zone.